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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Nicolas Massoni

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ALEXANDRIA, VA 22314

EXAMINER

KIM, KIHU

ART UNIT

PAPER NUMBER

2884

NOTIFICATION DATE

DELIVERY MODE

07/16/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/581,970	Applicant(s) MASSONI ET AL.	
	Examiner KIHO KIM	Art Unit 2884	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 July 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 38-96 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 38-96 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 July 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>09/06/09 and 09/28/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed on July 1, 2008 have been fully considered but they are not persuasive.
 - a. Newly amended sole independent claim 38 is determined to be rejected under 35 U.S.C. 103. See below the detailed rejection justification to claim 38.

Claim Objections

2. Claim 38 is objected to because of the following informalities:
 - b. "an horizontal plane" should be "a horizontal plane." Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.
4. Claims 75 – 96 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

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- a. Newly added independent claim 75 carries a claimed limitation not supported by the Specification of the Application in Question – “the reading means being mobile” which is on the last line of claim 75.
- b. It is determined that this claimed limitation can be seen in Figs. 8A and 8B. In these figures, pad **228** is NOT "mobile".

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 38 - 65 and 67 – 74 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reed *et al.* (US 2003/0141453 A1, hereunder Reed.)

Regarding independent claim 38:

Reed teaches a device (Fig. 5A) for measuring radiant energy comprising:

a carrier **120** including first means allowing absorption of radiant energy, and second means **243** enabling provision of one or more electric signals in relation to the absorbed radiant energy (IR energy sensor membrane 120 on line 9 in paragraph [0054]); and

a substrate **110** including reading means **130** for reading the electric signals, the carrier being mobile (by levitation mechanism 140 in Fig. 4B; on line 10 in paragraph [0054]) relative to the substrate,

wherein the carrier is suspended over the substrate and is mechanically joined to the substrate by a suspending means **241, 242**, the carrier being mobile relative to the substrate (as seen in Figs. 5A and 5B).

Reed is silent with wherein the substrate surrounds the carrier and the carrier being able to move along a horizontal plane in parallel to the carrier.

However, Reed teaches the suspending means **241, 242** to prevent heat leak from the sensor membrane in order to maximize the sensor's sensitivity of IR radiation absorbed by **120** by nearly isolating the membrane, which is identical to the inventive concept of the Application in Question as described in lines 9 – 15 of p. 21. In addition, Reed teaches a shift actuator **243** to read out IR signal. This actuator is actuated by electrostatic force as disclosed in paragraph [0011], which is identical to the mechanism as disclosed in lines 14 – 31 of p. 22 in the Specification of the Application in Question.

In view of these teachings by Reed, it would have been obvious to a person having ordinary skill in the art at the time of the claimed invention was made to modify the teaching of Reed so as to have wherein the substrate surrounds the carrier and carrier being able to move along a horizontal plane in parallel to the carrier as a design choice in the ordinary skilled art for desired performance.

Regarding dependent claim 39, Reed teaches a device for measuring radiant energy, the reading means being fixed (in the substrate; see Fig. 9).

Regarding dependent claim 40, Reeds teaches a device for measuring radiant energy, the reading means (126 and 127 on line 7 in paragraph [0064]; since contact 126 and 127 are part of the reading means) being mobile.

Regarding dependent claim 41, Reed teaches a device for measuring radiant energy, the first means (120) and the reading means (126 and 127) being mobile.

Regarding dependent claim 42, Reed teaches a device for measuring radiant energy, configured to take up a position in which the second means is not electrically (absorption period on line 9 in paragraph [0057] which is carried out in levitated state) connected to the reading means.

Regarding dependent claim 43, as illustrated in Fig. 4A Reed teaches a device for measuring radiant energy, configured to take up a position in which the substrate and the carrier are connected or attached solely by insulating zones belonging to the carrier or/and the substrate.

Regarding dependent claim 44, as illustrated in Fig. 4B Reed teaches a device for measuring radiant energy according to claim 38, configured to take up a position in which the carrier is neither attached to nor in contact with the substrate.

Regarding dependent claim 45, as illustrated in Fig. 4B by using a levitating mechanism 140 as discussed above Reed teaches a device for measuring radiant energy, configured to take up a position in which the carrier is in levitation with respect to the substrate.

Regarding dependent claim 46, as illustrated in Fig. 4A and as described in paragraph [0057] for post-absorption readouts Reed teaches a device for measuring radiant energy according to claim 42, the position being a position in which the device is configured to take a measurement.

Regarding dependent claim 47, since Reed detects IR energy using 101, Reed teaches a device for measuring radiant energy, the position being a position in which the first means is configured to heat.

Regarding dependent claim 48, as illustrated in Fig. 4A Reed teaches a device for measuring radiant energy, configured to take up at least one other position in which the second means is

electrically connected to the reading means.

Regarding dependent claim 49, as illustrated in Fig. 4A, Reed teaches a device for measuring radiant energy, configured to take up at least one other position in which conductor zones of the carrier are in contact with other conductor zones of the substrate.

Regarding dependent claim 50, as illustrated in Fig. 4A Reed teaches a device for measuring radiant energy according to claim 42, configured to take up at least one other position in which conductor zones of the carrier are in contact with the reading means of the substrate.

Regarding dependent claim 51, as illustrated in Fig. 4A Reed teaches a device for measuring radiant energy according to claim 48, the other position being a position in which the reading means is configured to acquire the electric signals.

Regarding dependent claim 52, as disclosed on line 10 in paragraph [0057] Reed teaches a device for measuring radiant energy, the other position being a position in which the first means is configured to cool (quenching period).

Regarding dependent claim 53, as illustrated in Fig. 4A Reed teaches a device for measuring radiant energy according to claim 38, the substrate and the carrier being mechanically attached or linked.

Regarding dependent claim 54, Reed teaches a device for measuring radiant energy, the carrier being attached to the substrate by suspending means (241 and 242 in Fig. 5A disclosed on line 4 in paragraph [0062]).

Regarding dependent claim 55, as illustrated in Fig. 5A and Fig. 5B, 241 and 242 are flexible. Thus, Reed teaches a device for measuring radiant energy according to claim 54, the suspending means being flexible.

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Regarding dependent claim 56, Reed teaches a device for measuring radiant, the suspending means being in a thermal insulating (non-conductive for thermal isolation in lines 7 - 8 in paragraph [0058]) material.

Regarding dependent claim 57, as illustrated Fig. 4A, Reed teaches a device for measuring radiant energy, the substrate and the carrier being mechanically independent.

Regarding dependent claim 58, Reed teaches a device for measuring radiant energy , further comprising: actuating means (140 as discussed above) for enabling displacement of the first means with respect to the reading means.

Regarding dependent claim 59, as illustrated in Fig. 4B, 140 levitates 120. Therefore, Reed teaches a device for measuring radiant energy, the actuating means enabling displacement of the carrier.

Regarding dependent claim 60, Reed teaches a device for measuring radiant energy, the actuating means enabling displacement of the reading means (since 126 and 127 being part of 120 levitating is also part of the reading means).

Regarding dependent claim 61, Reed teaches a device for measuring radiant energy, the actuating means being at least partly thermomechanical, or piezoelectric, or electromagnetic, or electrostatic (on lines 2 - 5 in paragraph [0011]).

Regarding dependent claim 62, as illustrated in Figs. 4A – 4B and 5A - 5B Reed teaches a device for measuring radiant energy, the actuating means including one or more electrodes (126 and 127) belonging to the carrier or/and one or more electrodes belonging to the substrate.

Regarding dependent claim 63, Reed discloses a means for levitation including electromagnetic fields and various dynamic electromagnetic forces in paragraph [0011].

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Therefore, Reed anticipates a device for measuring radiant energy, wherein the actuating means is piezoelectric, the reading means being configured to lengthen to enter into contact with the carrier.

Regarding dependent claim 64, Reed teaches a device for measuring radiant energy, the reading means being formed of one or more conductor pads(126, 127, 131, and 132).

Regarding dependent claim 65, as illustrated in Fig. 9 Reed teaches a device for measuring radiant energy, the substrate including one or more circuits for processing the electric signals.

Regarding dependent claim 67, Reed teaches a device for measuring radiant energy, the first means being formed of at least one absorbing layer (IR sensitive film 121 on line 16 in paragraph [0067])of electromagnetic radiation.

Regarding dependent claim 68, Reed teaches a device for measuring radiant energy, the second means being formed of at least one semi-conductive (on lines 16 – 22 in paragraph [0067]) or metal layer.

Regarding dependent claim 69, Reed teaches in paragraph [0067] that a device for measuring radiant energy, wherein the second means is formed of at least one semi-conductive layer, the semi- conductive layer adjoining or being integrated in the first means (infrared sensitive film 121).

Regarding dependent claim 70, Reed anticipates a device for measuring radiant energy according to claim 38, the second means including one or more thermistors (micro-bolometer sensor in paragraph [0018]).

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Regarding dependent claim 71, Reed teaches a device for measuring radiant energy, the substrate further including a layer enabling reflection (reflective layer 117 on line 12 in paragraph [0064]) of the electromagnetic rays.

Regarding dependent claim 72, Reed teaches a device for measuring radiant energy, the substrate being a semiconductor (substrate wafer in paragraph [0094]).

Regarding dependent claim 73, Reed teaches a device for measuring radiant energy, the device for measuring radiant energy being made in thin layers (thin film 121 as discussed above).

Regarding dependent claim 74, Reed anticipates A MEMS (in paragraph [0012]) comprising the device according to claim 38.

4. Claim 66 is rejected under 35 U.S.C. 103(a) as being unpatentable over Reed as applied to claim 38 above, and further in view of Belcher *et al.* (US 5,436,450. Hereunder Belcher.)

Regarding dependent claim 66:

The teaching of Reed has been discussed above.

Reed fails to teach a device for measuring radiant energy, the substrate including one or more circuits enabling polarization of the second means.

Belcher teaches a circuit to insure polarization associated with each thermal sensor in Col. 6, lines 35 – 46.

It would have been obvious to a person having ordinary skill in the art at the time of the claimed invention was made to modify the infrared sensor of Reed with a circuit to ensure polarization associated with each thermal sensor in order to consider the temperature change varied by the electrical polarization.

Allowable Subject Matter

5. Claims 75 – 96 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 1st paragraph, set forth in this Office action.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KIHONG KIM whose telephone number is (571)270-1628. The examiner can normally be reached on Monday - Friday 8:00 a.m. - 5:00 p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Porta can be reached on (571)272-2444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/K. K./

Examiner, Art Unit 2884

/David P. Porta/

Supervisory Patent Examiner, Art Unit 2884